

Weekly Report

12/14/2015 - 12/20/2015

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1 Summary

This week I mainly focus on the DataScanner project and new project idea initialization.

2 Projects

2.1 The DataScanner Project

I fixed many UI issues for the current system, which include

- The tree structure can be visualized in a dendrogram view.

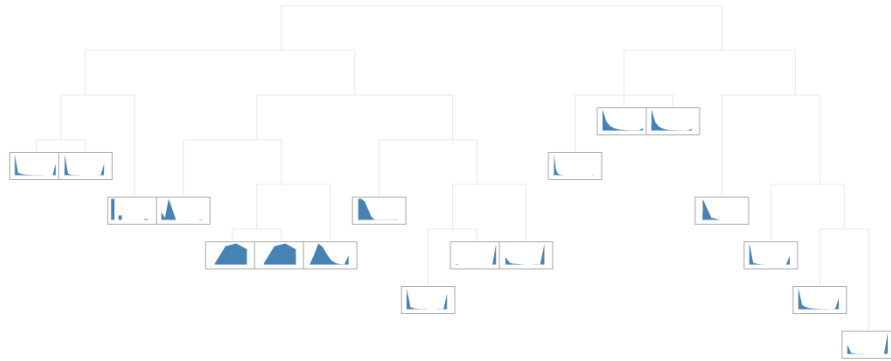


Figure 1: The dendrogram layout of TBUser dataset.

- I removed the row selection and add multi-selection instead. Now users can draw a box to select/hide/restore multiple views. The select/hide/restore selection is controlled by the radio boxes.

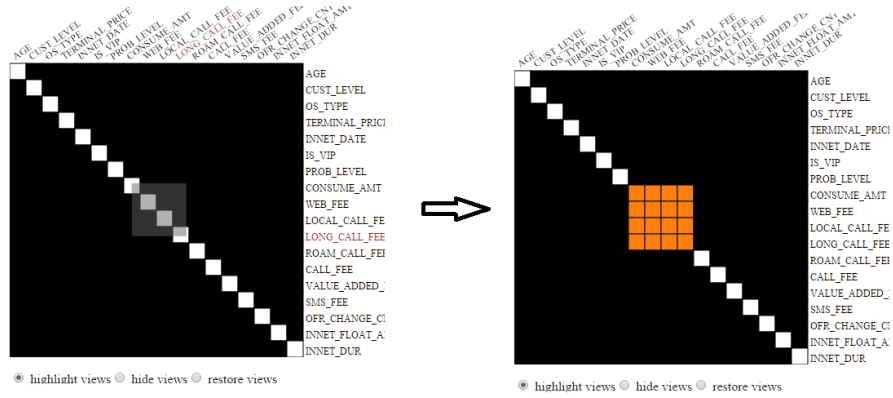


Figure 2: The multi-view selection in the matrix selector.

- When users select a view on the tree, the corresponding entry in the matrix selector will be highlighted.

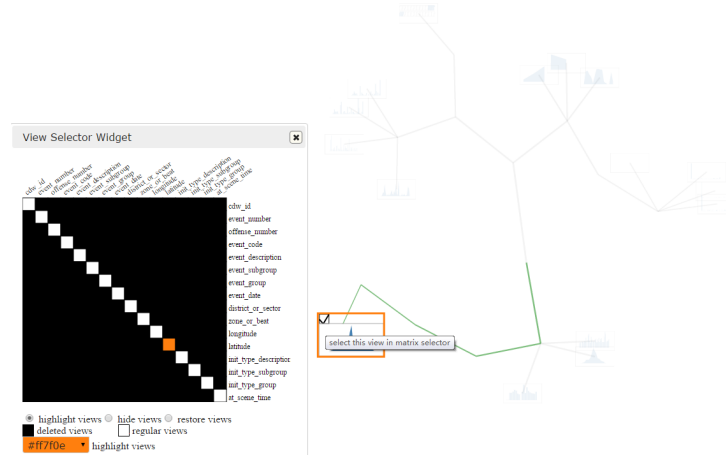


Figure 3: When users select a view on the tree, the corresponding entry in the matrix selector will be highlighted.

- Hongsheng pointed out that the scatter plot logo is too complex regarding the many small points. I change it to heatmap.
- I also added the labeling interaction for each rack. Users are able to add titles to each rack.

Cong Xie mentioned we can use movielens data to analyze relation tree of more depth.

2.2 The GeoScanner Project

The data processing of GeoScanner is initially settled. We would like to segment the time every 2 hours and then make the 2-hour space time a time-space cube. We use octree to structure the cube and thus a point can be presented as 3-2-0-3. A path in the cube is 3203-3201-3200 if it moves in a local region, or 3203-1023-2013 if it moves in a large region. Either way, you can compress the path with Hoffman encoding.

With the compressed data, we are able to query any path or find the most matching path rapidly. It enables complex data fusion and complex task analysis. With the taxi and cell data, we are able to find drivers of a taxi and when and where they switch duty. Additionally, we are also able to find out who take the taxi. For a given person, we are able to find out what are the relations between him and others who share a common space. Are they neighbors, family, colleges or acquaintance.

3 Paper Reading and Miscellaneous

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4 To Do List

1. DataScanner writing and MovieLens dataset.
2. GeoScanner idea initialization.